

CLAIMS

What is claimed is:

- 1 1. A flexible sheet, comprising:
2 a polyimide base layer; and
3 a metallic layer formed in a grid pattern upon said base layer.

- 1 2. The flexible sheet of claim 1, further comprising:
2 a plurality of metallic layers, formed upon said base layer, at least one of
3 said plurality of metallic layers formed in said grid pattern.

- 1 3. The flexible sheet of claim 2, wherein said plurality of metallic layers
2 further comprise:
3 an adhesion layer, said adhesion layer further comprising:
4 a chromium layer, applied upon said polyimide base layer; and
5 a copper layer, formed upon said chromium layer;
6 a nickel layer, formed upon said adhesion layer; and
7 a gold layer, formed upon said nickel layer.

- 1 4. The flexible sheet of claim 1, wherein said polyimide base layer is about 8
2 to about 25 angstroms (Å) in thickness.

- 1 5. The flexible sheet of claim 4, wherein said polyimide base layer is about 18
2 angstroms in thickness.

- 1 6. The flexible sheet of claim 3, wherein said chromium layer is about 250
2 angstroms in thickness.

1 7. The flexible sheet of claim 3, wherein said copper layer is about 1,500 to
2 about 2,500 angstroms in thickness.

1 8. The flexible sheet of claim 3, wherein said nickel layer is about 20,000
2 angstroms in thickness.

1 9. The flexible sheet of claim 3, wherein said gold layer is about 350 to about
2 15,000 angstroms in thickness.

1 10. The flexible sheet of claim 3, wherein said nickel layer is formed upon
2 said adhesion layer by plating in accordance with said grid pattern.

1 11. The flexible sheet of claim 10, wherein said gold layer is formed upon said
2 nickel layer by plating in accordance with said grid pattern.

1 12. The flexible sheet of claim 11, wherein portions of said adhesion layer are
2 removed such that remaining portions of said adhesion layer conform to said grid pattern.

1 13. The flexible sheet of claim 12, wherein said removed portions of said
2 adhesion layer are removed by etching.

1 14. The flexible sheet of claim 10, wherein said gold layer is formed upon said
2 nickel layer by evaporation thereon.

1 22. The flexible sheet of claim 21, wherein:
2 said plurality of horizontally oriented strips are separated from one another
3 by about 15 μm to about 25 μm .

1 23. The flexible sheet of claim 22, wherein:
2 said plurality of vertically oriented strips are separated from one another
3 by about 25 μm to about 1 mm.

1 24. A method of forming a flexible sheet, comprising:
2 forming a polyimide base layer; and
3 depositing a metallic layer in a grid pattern upon said base layer.

1 25. The method of claim 24, further comprising:
2 depositing a plurality of metallic layers upon said base layer, at least one
3 of said plurality of metallic layers formed in said grid pattern.

1 26. The method of claim 25, wherein said depositing a plurality of metallic
2 layers further comprises:
3 forming an adhesion layer, said adhesion layer further comprising:
4 a chromium layer, applied upon said polyimide base layer; and
5 a copper layer, formed upon said chromium layer;
6 forming a nickel layer upon said adhesion layer; and
7 forming a gold layer upon said nickel layer.

1 27. The method of claim 24, wherein said polyimide base layer is about 8 to
2 about 25 angstroms (\AA) in thickness.

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1 28. The method of claim 27, wherein said polyimide base layer is about 18
2 angstroms in thickness.

1 29. The method of claim 26, wherein said chromium layer is about 250
2 angstroms in thickness.

1 30. The method of claim 26, wherein said copper layer is about 1,500 to about
2 2,500 angstroms in thickness.

1 31. The method of claim 26, wherein said nickel layer is about 20,000
2 angstroms in thickness.

1 32. The method of claim 26, wherein said gold layer is about 350 to about
2 15,000 angstroms in thickness.

1 33. The method of claim 26, wherein said nickel layer is formed upon said
2 adhesion layer by plating in accordance with said grid pattern.

1 34. The method of claim 33, wherein said gold layer is formed upon said
2 nickel layer by plating in accordance with said grid pattern.

1 35. The method of claim 34, wherein portions of said adhesion layer are
2 removed such that remaining portions of said adhesion layer conform to said grid pattern.

1 36. The method of claim 35, wherein said removed portions of said adhesion
2 layer are removed by etching.

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1 37. The method of claim 33, wherein said gold layer is formed upon said
2 nickel layer by evaporation thereon.

1 38. The method of claim 33, wherein:
2 portions of said adhesion layer are removed such that remaining portions
3 of said adhesion layer conform to said grid pattern; and
4 said gold layer is formed upon said nickel layer by evaporation thereon.

1 39. The method of claim 38, wherein said removed portions of said adhesion
2 layer are removed by etching.

1 40. The method of claim 26, wherein said nickel layer provides a diffusion
2 barrier between said adhesion layer and said gold layer.

1 41. The method of claim 40, wherein said gold layer has low contact
2 resistance.

1 42. The method of claim 41, wherein said gold layer protects underlying layers
2 from oxidation.

1 43. The method of claim 24, wherein said grid pattern further comprises:
2 a plurality of horizontally oriented strips; and
3 a plurality of vertically oriented strips.

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1 44. The method of claim 43, wherein:
2 said plurality of horizontally and vertically oriented strips have a width of
3 about 25 μm to about 50 μm .

1 45. The method of claim 44, wherein:
2 said plurality of horizontally oriented strips are separated from one another
3 by about 15 μm to about 25 μm .

1 46. The method of claim 44, wherein:
2 said plurality of vertically oriented strips are separated from one another
3 by about 25 μm to about 1 mm.